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[Trabue, Marion Rex]

Thorndike visual vocabulary
scales.

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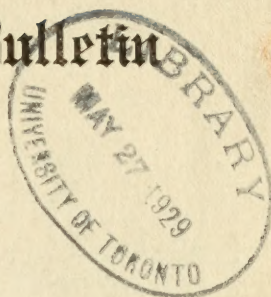
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Thorndike Visual Vocabulary Scales, Directions for Their Use

revised by
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DIRECTIONS FOR THE THORNDIKE VISUAL VOCABULARY SCALES*

THE FOUR SCALES

Scale A2, *x* series

Scale B, *x* series

Scale A2, *y* series

Scale B, *y* series

The four scales may best be considered as two, an A scale and a B scale, each of which is divided into two parallel series, *x* and *y*. When it is desired to repeat a test with a class of pupils, for the purpose of either verifying the result first obtained or measuring the improvement made between the dates of the two trials, it will perhaps be found most satisfactory to use the other series of the scale previously used. For example, where the *x* series of the B scale was used in the first trial, the *y* series of the B scale should probably be used in the second trial.

In general it is safe to assume that scores on Scale B are equivalent to scores on Scale A, although it is probable that in any specific measurement with both scales a slight disagreement would be discovered. The two scales were constructed from different data but according to the same principles. A few words are common to both scales, which fact allows one to compare the two scales as to difficulty, at least in so far as these common words are concerned.¹ Of the words which do occur in both scales, almost as many hold higher positions as hold lower positions in Scale A than in Scale B. This would indicate that there is little difference in the difficulties of Scales A and B at any given point.

In case one desires to give only one test, Scale A2, *x* series, will probably for general purposes be found most satisfactory. Each scale consists of from ten to thirteen lines of words to be identified, the words in each line being approximately equally difficult to identify. The difficulty involved in the identification of the words in any line is indicated by the arabic numbers printed

* For complete information on the derivation of the Thorndike Visual Vocabulary Scales, and the first scale devised (Scale A), see articles in the *TEACHERS COLLEGE RECORD* for September, 1914, and November, 1916, by E. L. Thorndike.

¹ See Table IV, pp. 452-54, *TEACHERS COLLEGE RECORD*, November, 1916.

at the left of the line of words as they appear on the published scale. For comparative purposes these difficulty values are indicated below:

SCALE A2		SCALE B	
Series x	Series y	Series x	Series y
4	4	4	4
$4\frac{1}{2}$		$4\frac{1}{2}$	
5	5	5	
$5\frac{1}{2}$	$5\frac{1}{2}$		$5\frac{1}{2}$
6	6	6	6
$6\frac{1}{2}$	$6\frac{1}{2}$ $6\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{1}{2}$
7	7	7	7 7
$7\frac{1}{2}$		$7\frac{1}{2}$	$7\frac{1}{2}$ $7\frac{1}{2}$
8	8	8	
$8\frac{1}{2}$		$8\frac{1}{2}$	$8\frac{1}{2}$
9	9	9	9
$9\frac{1}{2}$		$9\frac{1}{2}$	
10	10	10	10
No. of Lines... 13	10	12	12

It will be observed that the x series of the A scale is not only longer than the others, but that its increases in difficulty are more regular. The x series of the B scale is inferior to the x series of the A scale in that it does not contain any words at difficulty $5\frac{1}{2}$. The y series of the A scale would be especially useful in measuring a class at about the $6\frac{1}{2}$ level, and the y series of the B scale is especially rich and useful at the 7 and $7\frac{1}{2}$ level.

These scales for Word Knowledge or Visual Vocabulary were designed for grades 4 to 8 inclusive, but they will in many cases be found useful in grade 3 and in the majority of high school classes. Experience seems to indicate the following degrees of difficulty as most useful in the different school grades:

GRADE	III	IV	V	VI	VII	VIII	I. H. S.	II H. S.
	4	4	5	$5\frac{1}{2}$	6	7	$7\frac{1}{2}$	8
Difficulties	$4\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	6	$6\frac{1}{2}$	$7\frac{1}{2}$	8	$8\frac{1}{2}$
appropriate	5	5	6	$6\frac{1}{2}$	7	8	$8\frac{1}{2}$	9
		$5\frac{1}{2}$	$6\frac{1}{2}$	7	$7\frac{1}{2}$	$8\frac{1}{2}$	9	$9\frac{1}{2}$
		6	7	$7\frac{1}{2}$	8	9	$9\frac{1}{2}$	10

To secure an approximately accurate measure of an individual pupil's word knowledge, one should use all of the lines of words of the appropriate difficulty. For example, if a pupil's ability is somewhere about difficulty 8, one should measure him with the

following lines: A2x 7½, Bx 7½, By 7½, By 7½, A2x 8, A2y 8, Bx 8, By 8, A2x 8½, Bx 8½, and By 8½. To secure a measure of a class or group, however, one need not use more than the regular form of one of the printed scales, although the one to use should be selected with some attention to its appropriateness.

Each scale is to be administered as a "group test," the size of the group being limited only by the seating capacity of the room and the voice of the examiner. Care should be taken that each pupil taking the test is fully provided with pencils or with pen and ink before the test begins, and that each pupil has sufficient table or desk space to enable him to work without interference or distraction.

THE PRELIMINARY TEST

The Preliminary Test should be used in all classes examined, although many examiners have omitted it in measuring sixth and higher grades. This omission may not have much influence on the score of the higher grades, but any influence it has is certainly in the direction of lowering the score obtained. One should therefore give the Preliminary Test if he wishes to be fair to his class in making comparisons with classes examined elsewhere. The Preliminary Test need not be given when the class has previously taken another form of the real test.

The blanks for the Preliminary Test should be distributed to the pupils face downward, with the direction not to turn the papers until permission is given to do so. When all the blanks are distributed, the examiner should speak somewhat as follows:

"Now turn your papers and look at the four lines of words printed near the bottom of the page,—the first line beginning with 'cat,' the second line with 'to-day,' and so on.

"Now look at the top of the page where it says: 'Write your name here.' Do everything it tells you to do. Write your name on the dotted line, and then read the next sentences, which tell you what letter to make under each of the words at the bottom of the page. Do everything it tells you to do just as quickly as you can. When you have done everything it says, when you have written the proper letters under all the words, turn your papers face down on the desk and lay aside your pencil. Do everything it says to do. Ready. Begin!"

PRELIMINARY TEST. VISUAL VOCABULARY

Write your name here.....

Look at each word and write the letter F under every word that means a *flower*.

Then look at each word again and write the letter A under every word that means an *animal*.

Then look at each word again and write the letter N under every word that means a *boy's name*.

Then look at each word again and write the letter T under every word like *now* or *then* that means something to do with *time*.

Then look at each word again and write the word GOOD under every word that means something *good to be or do*.

Then look at each word again and write the word BAD under every word that means something *bad to be or do*.

cat, dick, rose, now, lion, lazy, honest, fred,

to-day, buttercup, thief, good, then, tiger, dog,

clean, daisy, before, tom, steal, yesterday,

horse, william, wolf, john.

The purpose of the Preliminary Test is to make clear to each child exactly what he is to do when he begins the real test and to give the pupils some practice in the mechanics of taking the test. The teacher should give such individual assistance as is necessary with the Preliminary Test, making certain that each pupil under-

stands what is expected and that he makes an honest effort to do it. If further group instruction seems desirable the examiner may give it orally or may use the blackboard. Such explanations, including emphasis of the direction to turn the papers face downward as soon as all words are marked, may take ten or fifteen minutes in the third or fourth grade, but in higher grades little time will be used in this way.

When a pupil finishes his work and turns his paper down, the examiner should look it over to make certain that the pupil has understood what to do. Any pupil who has less than five errors and omissions in the first two lines (together) of the Preliminary Test may be assumed to understand the general nature of the test sufficiently well to go ahead with the real test. Any pupil who has more than ten words wrong or omitted in the first two lines of the Preliminary Test may be assumed *not* to understand the nature of the test. Such a pupil should receive special instruction and explanation with the first line, until he can do the second and third lines independently with not more than six words wrong or omitted, or until the examiner is convinced that the pupil does not know the meanings of the printed words. In the latter case the pupil's ability is less than that required by words of difficulty 4 and there is no use in trying to test him with the scales.

The examiner would do well to commit to memory the correct answers to each line of the Preliminary Test, in order that a single glance at a line may be sufficient to reveal the number of errors and omissions. The correct answers in the Preliminary Test are as follows:

Line								
1.....	A	N	F	T	A	Bad	Good	N
2.....	T	F	Bad	Good	T	A		A
3.....	Good	F	T	N	Bad	T		
4.....	A	N	A	N				

THE REAL TEST

When the Preliminary Test papers have been collected and checked to make certain that each pupil is ready for the real test, the desired form of the Visual Vocabulary Scale should be distributed, printed side downward, with the oral instruction not to begin work until directed to do so. When all papers have been

correctly distributed the examiner should give the following directions:

"This sheet is just like the other one, only longer. You are to write your name, your age, your grade in school, and so forth, on the dotted lines at the top of the page where it tells you to write them. Then you are to read each sentence carefully and to do what it says to do. When you have marked all the words you know, hand in your paper. Do your best. Ready. Begin!"

In giving the above directions one should take care to avoid the creation of any excitement or nervousness among the pupils. One's tones should be pleasant, but businesslike. The exact time at which the pupils are told to begin should be noted carefully, and as each paper is handed in a note should be made, in the upper left-hand corner, indicating the number of minutes required for the pupil to complete the test. A stop-watch is the best means for keeping the time in such a test. In keeping this record of time one should avoid making the pupils feel that they must hurry, and if possible avoid allowing them to know that such a record of time is being kept. This record of time forms no part of the visual vocabulary score and is only an instructive sidelight regarding a pupil's reading ability.

As soon as a paper is handed in, the examiner should glance at the first line or two to see that no special class of words has been omitted. If one or two of the directions have been entirely overlooked, the examiner should call the attention of the pupil to the classes of words omitted and have him try to complete his task.

Exactly 25 minutes after saying "Begin!" one should say, "Stop! Lay aside your pencils!" All papers should, of course, be collected as soon as finished. If all have finished in less than 25 minutes, one will not need to call "Stop!" Collecting the papers when finished is one of the best means of avoiding possible cheating and copying. Every paper should be collected at the end of the 25 minutes, whether all of the work has been done or not.

MARKING THE TEST PAPERS

Much time may be saved in marking large numbers of test papers by using a stencil of transparent celluloid or onion-skin paper, such that when placed upon a printed test-sheet it will fit

exactly and show under each test-word the proper capital letter or identifying word. The task of marking the paper is thereby greatly reduced. One need not, in such a case, read the test-word at all. All that a scoring clerk needs to do is to compare the capital letters or identifying words written on the test-blank with those appearing on the stencil. If there is agreement, the word has been properly identified, but if there is disagreement, the word has been incorrectly marked.¹

In making the stencil one should be careful to place each capital letter in exactly the proper location on the stencil and to give both possibilities where two correct classifications are possible. In the absence of celluloid, stencils may be made by cutting parallel horizontal strips from a sheet of light bristol-board and marking the correct answers at the proper intervals on the strips that remain.

When the purpose of the test is to measure the *general* word-reading ability of a given class or group of pupils, the total number of errors and omissions in any given line of words should be entered at the right of the line on the margin of the printed test blank. From this place it will later be copied on the Test Record Sheet for that particular class or group, at the right of the child's name and below the arabic number and small letter indicating the difficulty and series, respectively, of that particular line of words.

When the purpose of the test is to measure the word-reading ability of a group of pupils on the different individual words or *classes* of words, each individual word which is omitted or incorrectly identified should be distinctly marked by the scoring clerk, preferably with a colored pencil which will cause such check marks to stand out distinctly from the pencil marks made by the pupils. As a matter of uniform procedure it is suggested that a line or dash be drawn downward and to the right through any identifying letter or word (\) which is incorrect, and that a check mark (√) be made under each word which has not been identified in any way, except that no marks need be made by the scoring clerk where an entire line of words has been omitted or left unmarked by the person tested.

¹Transparent stencils may be procured from the Bureau of Publications, Teachers College.

their knowledge of *animals* and *flowers* only, or whether the deficiency extended also to words about *time*, *religion*, *family* and *number*.

For certain purposes it would be very much worth while to record on the above type of record-sheet the exact letter or word used by each pupil to identify each test word. A great deal of useful information could be obtained in this way concerning the thinking processes of any pupil and concerning his learning methods. To discover why a pupil in Scale A2, *x* series, for example, writes *bad* under the word "camel" or under the word "goat" would frequently be very informing and helpful to the teacher. There will usually be some explanation of each error other than mere carelessness, and the teacher who takes the time to study her class and the errors made by them will usually be a more able teacher as a result of such study of her problems.

For measuring word knowledge in general, however, the full and complete record suggested above is not necessary. The most common purpose for which the Visual Vocabulary Scales will be used is for comparison of one group with another, or possibly for comparison of one individual with another individual or with a group of individuals. For this purpose the following type of record sheet should be prepared or purchased from the publishers.

TEST RECORD SHEET

THORNDIKE SCALES: WORD KNOWLEDGE OR VISUAL VOCABULARY

City		State		School		Room No.		
Grade or Group			Test given by			Date of Test		
Unusual conditions								
Papers marked by			Scores recorded by			Calculations by		
Pupil			Items Used: Scale, Series, and Difficulty					Summary of each pupil
No.	Age	Name						
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2								
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4								
5								
6								
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The above Test Record Sheet is intended to serve as a record of each matter of importance connected with the tests, identifying not merely the place and date of the test but also who was responsible for each step of the work connected with obtaining the final results. The age and name of each pupil is to be written in a column down the left side of the page. It will usually be best to arrange the names alphabetically for convenience in referring to them later. Under the heading "LINES USED" one should enter in the spaces provided for them the notations to indicate scales, series, and difficulties used. "A2x4" in one of these blocks, for example, would indicate that the scores appearing below it were for the number of errors in line 4 of the *x* series in Scale A2. Similarly, "By7½" would stand at the top of the column containing the number of errors in one of the 7½ lines of the *y* series in Scale B.

Since the maximum number of errors possible in any line is ten, the scores to be entered at the right of each pupil's name, under the appropriate line number and letter, will range from 1 to 10. Where no errors at all have been made, it will be best to make no record, leaving the square entirely blank. If the individual tested has entirely omitted the last few lines, making no identification marks whatever, the recording clerk may save time by drawing a continuous line horizontally through the squares that remain rather than make an individual mark in each one. In order to secure uniformity of record, it is suggested that a short dash be entered as the score for any line entirely omitted, if more difficult lines are attempted. Where certain individual words in a given line are omitted, while others are attempted, it is suggested that these omitted words be considered incorrect and counted among the errors on that line. The usual record, of course, for any line will be the number of errors and omissions made.

CALCULATING CLASS SCORES

The achievement of a group or class in the Visual Vocabulary Scales is to be expressed by a figure representing the difficulty of a line, either real or imaginary, which would cause that group to

have 80 per cent of success and 20 per cent of errors and omissions. For this purpose one need not use the results on every line in the scale but merely the lines which come nearest to producing 20 per cent of errors. The first step, therefore, is to add at the bottom of the Record Sheet the total number of errors for the entire group on each line. The second step is to divide the total number of errors by the total number of pupils tested and to enter on the second line at the bottom of the page the "Per cent of Errors."

A fairly satisfactory measure of a group will be obtained if only one of the vocabulary scales has been used. The two percentages of errors which are nearest 20 should be taken as a basis for further calculations, in such a case choosing one which is larger than 20 and one which is smaller than 20, if possible.

A more satisfactory measure of the group will be obtained by using the lines of appropriate difficulty from two or three of the scales. In such a case, one would choose from each of the scales the two lines which produced nearest 20 per cent of errors, make calculations from them, and average all of the results together for a final score.

It is quite evident that in only a very small number of cases will one actually obtain 20 per cent of errors on any given line. One should obtain percentages of errors which are somewhere between ten and thirty, but to obtain exactly 20 per cent would be rather an unusual occurrence. It is therefore necessary to take the percentages of errors actually found on lines of certain difficulties and to calculate by means of the Correction Table what the difficulty of a hypothetical line would have to be in order to cause exactly 20 per cent of errors and omissions. This table is shown on the following page.

From the Correction Table it will be observed that if one has 10 per cent of errors on a certain line, one should add 1.1 to the difficulty of that line in order to obtain the difficulty of the hypothetical line which would cause exactly 20 per cent of errors. Similarly, if one obtains 30 per cent of errors upon a given line, he will have to subtract .79 from the difficulty of that particular line in order to discover the difficulty of the hypothetical line.

CORRECTION TABLE FOR THORNDIKE'S VISUAL VOCABULARY SCALES*

To estimate the degree of difficulty at which 20 per cent of errors and omissions would be found from any given percentage of errors and omissions between 10 per cent and 30 per cent.

%	ADD	%	ADD	%	SUBT.	%	SUBT.
10.0	1.10	15.0	.49	20.0	.00	25.0	.42
1	1.08	1	.48	1	.00	1	.43
2	1.06	2	.46	2	.01	2	.44
3	1.05	3	.45	3	.02	3	.45
4	1.04	4	.44	4	.03	4	.46
5	1.03	5	.43	5	.04	5	.47
6	1.01	6	.42	6	.05	6	.48
7	1.00	7	.41	7	.06	7	.48
8	.99	8	.40	8	.07	8	.48
9	.97	9	.39	9	.08	9	.49
11.0	.96	16.0	.38	21.0	.09	26.0	.50
1	.95	1	.37	1	.10	1	.51
2	.94	2	.36	2	.105	2	.51
3	.92	3	.35	3	.11	3	.52
4	.91	4	.34	4	.12	4	.53
5	.90	5	.33	5	.13	5	.53
6	.88	6	.32	6	.14	6	.54
7	.87	7	.31	7	.15	7	.55
8	.86	8	.30	8	.16	8	.56
9	.85	9	.29	9	.17	9	.56
12.0	.83	17.0	.28	22.0	.175	27.0	.57
1	.82	1	.27	1	.18	1	.58
2	.81	2	.26	2	.19	2	.59
3	.80	3	.25	3	.20	3	.59
4	.78	4	.24	4	.21	4	.60
5	.77	5	.23	5	.22	5	.61
6	.76	6	.22	6	.23	6	.62
7	.75	7	.21	7	.23	7	.63
8	.74	8	.20	8	.24	8	.63
9	.72	9	.29	9	.25	9	.64
13.0	.71	18.0	.18	23.0	.26	28.0	.65
1	.70	1	.17	1	.26	1	.66
2	.69	2	.16	2	.27	2	.66
3	.68	3	.16	3	.28	3	.67
4	.66	4	.25	4	.29	4	.68
5	.65	5	.24	5	.30	5	.68
6	.64	6	.23	6	.305	6	.69
7	.63	7	.22	7	.31	7	.70
8	.62	8	.21	8	.32	8	.71
9	.61	9	.10	9	.33	9	.71
14.0	.61	19.0	.09	24.0	.34	29.0	.72
1	.59	1	.08	1	.35	1	.73
2	.58	2	.07	2	.36	2	.74
3	.57	3	.06	3	.36	3	.75
4	.56	4	.05	4	.37	4	.75
5	.55	5	.04	5	.38	5	.76
6	.53	6	.03	6	.39	6	.77
7	.52	7	.02	7	.40	7	.77
8	.51	8	.01	8	.40	8	.78
9	.50	9	.00	9	.41	9	.79

*Reprinted from Thorndike, "The Measurement of Achievement in Reading: Word Knowledge," TEACHERS COLLEGE RECORD, November, 1916.

The final score of a class or group is to be obtained by finding the average of the two or more indicated ability values obtained by calculation from the lines which come nearest causing 20 per cent of errors. Let us assume, for example, that by the addition of the total number of errors and the calculation of the percentage of the total number of responses which are wrong, one finds 17.6 per cent of errors on a line of difficulty 7. Reference to the table will cause one to add .22 as a correction to the difficulty value of 7. As an Indicated Ability value one would enter 7.22. On another line of difficulty, $7\frac{1}{2}$, one may have obtained 24.5 per cent of errors and omissions. From the table one would get the correction, .38 to be subtracted from the difficulty value, 7.5. This would give for this line an Indicated Ability of 7.12. As a final score for the class, one may average these two Indicated Ability scores, which would give a final score for the class of 7.17. If there had been a third line which caused somewhere near 20 per cent of errors and omissions, it might have been well to make calculations from it and to have averaged the three results. As a matter of fact, it is fairly safe to use as a class score the Indicated Ability from any one line which is within 2 per cent of the 20 per cent point, especially where full sized classes of pupils are concerned.

This method of calculating class scores is satisfactory for calculating the scores of any group where it is not necessary to know the individual score of any one person. Where an estimated score for each individual pupil has been calculated, one may obtain the score of the class by tabulating the individual scores and calculating the central tendency (average, median, or mode) of the individual scores. On the whole, it will probably be more satisfactory to calculate a class score from percentages of errors made by the class as a whole upon the appropriate lines as explained above than to calculate it from the individual scores of the pupils contained in the class. Similarly, where several sections of a class have been measured separately, the score for the whole class may better be calculated from the sums of the errors made by the total number of pupils in the class than from the average of the scores of the various sections.

CALCULATING A PUPIL'S SCORE

The difficulty of any particular line of words has been determined with reference to large numbers of pupils. An individual pupil may vary quite widely from the average result which has been obtained in the past. A pupil, may, for example, fail on a line whose general difficulty is $7\frac{1}{2}$ and yet succeed quite well on a line whose general difficulty is 8. This will be rather an unusual situation but it is certain to occur occasionally. In order to obtain an approximately accurate score for a pupil, it will therefore be necessary to test the pupil with all of the words (in both scales) at the two difficulty levels most appropriate for his ability. In other words, an individual pupil's score may not be determined very accurately by less than 7 lines of words, each within one-half unit of his real ability.

In order to save time, it will be wise to explore a pupil's ability by having him take either the *x* or *y* series of one of the scales under the conditions described in previous paragraphs. An entire class might be explored in this way at the same time. When one has checked up the pupil's paper and found the two steps of the scale which come nearest giving 20 per cent of failures, one may then bring in the other series and the other scale and ask the pupil to identify all the words at these two particular difficulty levels. The final score for the pupil would then be obtained by calculating for each line the percentages or errors, and determining from the table the corrections to be added or subtracted from the difficulty of the lines. If three lines of difficulty 5 produce an Indicated Ability of 5.3, while three other lines of difficulty $5\frac{1}{2}$ produce an Indicated Ability of 5.4, the final score for the pupil would be 5.35, the average of 5.3 and 5.4.

Certain investigators have proposed methods of calculating individual pupils' scores on the basis of ten or twenty words from one series of a scale. Scores obtained in this way are very unreliable and are frequently unjust to the pupil. It will be much more satisfactory to employ all of the words at a given difficulty level if any true indication of the pupil's ability is desired.

As indicated in a previous paragraph, it is possible, from the individual scores calculated on the basis of 6 or 8 lines per pupil, to obtain an average score for the class. It is suggested, however,

that in obtaining scores for a class the method described in previous paragraphs for calculating class scores be employed.

HOW TO INTERPRET THE SCORES

The achievement of a class in a Visual Vocabulary Scale may be interpreted partially by comparing its score with the scores made by other classes or with its own score in a previous trial. The table given below presents, among other results, the results which were obtained in May, 1915, by Professor Haggerty in eighteen cities of the state of Indiana. The table also pre-

GRADE SCORES ON THORNDIKE'S VISUAL VOCABULARY SCALES

Names of Places	School Grade							Date of Tests	Number of pupils per grade
		III	IV	V	VI	VII	VIII		
Cities in Indiana...	No. 1	3.86	5.34	6.64	7.38	7.24	7.66		
	2	4.66	5.66	6.83	8.03	7.64			
	3	5.38	6.11	7.29	7.56	7.95			
	4	5.07	5.83	5.73	5.90	7.24	8.81		
	5	3.58	4.74	6.20	7.01	7.26	7.35		
	6	5.13	6.38	6.32	7.61				
	7	4.95	5.22	5.90	6.53	7.77	7.86		
	8	3.31	5.20	5.58	6.70	7.21	7.73		
	9	4.37	5.64	6.64	7.32	7.38	7.90		
	10	5.49	5.66	6.68	6.31	7.84			
	11	4.97	5.27	5.68	6.73	7.26	8.66		
	12	3.61	4.95	6.58	6.54	7.38	7.63		
	13	4.54	5.38	6.18	7.08	7.58	8.18		
	14	3.17	4.71	5.42	6.63	7.13	7.48		
	15	4.34	5.24	6.05	6.45	7.40	7.79		
	16	3.40	5.15	5.49	6.26	6.86	7.98		
	17	3.44	4.86	6.24	6.81	7.32	8.07		
	18	4.00	5.26	6.00	6.66	7.29	7.91		
18 Indiana Cities ¹		4.00	5.26	6.00	6.66	7.29	7.91	May 1915	1313-2095
Louisville, Ky. ²		4.7	5.7	6.8	7.7	8.5	Spring 1916		325-600
Nassau Co., N. Y. ³		4.05	7.08	7.89	April 1916		107-225
Farmersburg, Ind. ⁴		4.34	4.37	4.73	6.92	7.21	1917-18		20-35
Horace Mann School ⁵		3.98	5.03	7.04	7.06	8.78	8.37	Nov. 1917	Approx. 25
Friends School, Bklyn. ⁶		5.69	6.64	8.26	9.42	None	Feb. 1919		14-28
Woodmere School ⁷		4.87	4.30	6.49	5.43	8.06	9.45	Nov. 1918	6-16
Proposed Standard ⁸		4.0	5.3	6.2	6.9	7.5	8.0	Middle of 2nd Half Year	

¹ From Table 3, page 13, *The Ability to Read: Its Measurement and Some Factors Conditioning It*, by M. E. Haggerty. (Indiana University Studies, No. 34, Jan. 1917.)

² From page 68, *Fifth Report of the Board of Education of Louisville, Ky.*, 1916.

³ From page 172, *Report of a Survey of Public Education in Nassau County, N. Y.*, by M. R. Trabue. (Bull. No. 652, Univ. of the State of New York, Dec. 1, 1917.)

⁴ From page 124, *Field Investigation of Public Schools at Farmersburg, Ind.*, by Edgar A. O'Dell, April, 1918. (An unpublished report on file at Teachers College.)

⁵ From Table III, page 20, *Report of the Dean of Teachers College*. Teachers College Bul. No. 5, Tenth Series, Nov. 9, 1918. (Only the A sections, or first half year in each class, are reported above.)

⁶ From page 2, *A Study of the Achievements of Pupils of the Friends School, Brooklyn, N. Y.*, February, 1919. (An unpublished study by the Department of Educational Administration, on file in Bryson Library, Teachers College.)

⁷ From page 56, *A Study of the Woodmere School, Woodmere, N. Y.*, Nov. 1918. (An unpublished study by the Department of Educational Administration, on file in Bryson Library, Teachers College.)

⁸ Proposed by M. R. Trabue. A smoothed curve of progress running slightly above the average of schools thus far tested.

sents the scores obtained in private schools near New York and in the public schools of Louisville, Ky. The standard proposed at the bottom of the table is from a smoothed curve of achievement in the various cities listed, showing approximately the sixty percentile of cities rather than the median. In other words, this standard is slightly above the average result which cities have obtained, but it is not as high as the best third of the cities so far measured have attained. One can, therefore, be pretty well satisfied that his school is doing better than the average if a class attains this standard.

It would be very foolish for anyone to undertake to drill pupils upon the meanings of words in order to obtain a higher score on this test, especially to undertake to teach them the particular words included in the Thorndike scales. Such a procedure would be equivalent to teaching a person who is going to be weighed, how to grasp the weighing machine and to exert the strength of his muscles to increase the pressure on the platform of the scales. The fact that one was able to exert greater pressure than his mere weight would not prove that he had increased his weight, any more than the teaching of pupils how to identify the words of these scales would prove that they had thereby increased their word knowledge.

A low score in the Visual Vocabulary Scales may be the result of lack of experience in life, it may be the result of inadequate explanations of the experiences the child has had, or it may be the result of some entirely different factors. The teacher of reading, or of arithmetic, or of geography may have assumed, without warrant, that the words of the text-book were understood by the pupils. In such a case, verbal memory may have enabled the pupil to make satisfactory responses to the questions asked in class but may be entirely inadequate to enable him to identify the words when they appear on a scale such as the one here discussed. The purpose of these scales is to measure the results actually being obtained rather than to indicate anything at all about what causes these results or to improve them.

Teachers who desire to check up the difficulty of the words appearing in the geography, arithmetic, history, or other text-books used by their pupils may easily do so by making up a test blank in which every second word is from an appropriate difficulty level

of the Thorndike Scales, with the words from the text-book sandwiched in between the words of known difficulty. Care should be taken in such a case to make certain that the text-book words are such as could be properly classified under one of the instructions appearing at the top of the test sheet. The results should be tabulated on the form of Scoring Sheet shown on page 8. To prove that the words of the text-book are not too difficult, the percentage of errors on the text-book words should be smaller than the percentage of errors on the scale words, if the scale words were chosen from lines having the difficulty values corresponding to the standard score of the grade as shown on page 15.

The most common misunderstanding of the results of measurements of ability in reading, or in any other subject, is to assume that measuring the ability of a class or of a pupil will improve that ability. Measuring the height of a child does not make him taller, nor does measuring his word-knowledge increase his vocabulary. The supervisor or teacher who measures a child and finds him underweight and not as tall as he should be, may perhaps inform the pupil or his parents of the kind of food that would be most healthful and most likely to overcome the deficiency, but the measuring in itself will not *increase* either the height or the weight. It merely *reveals* more exactly the size of the pupil. Measuring word-knowledge reveals the size of the reading vocabulary in the same way. The teacher may know or discover the causes of the present size of vocabulary, and she may discover ways of increasing the vocabulary in the future, but the measurement itself should not be expected to enlarge that vocabulary. Measurement of results and the production of results are two distinct processes.

NOTE: This pamphlet has been prepared by Dr. M. R. Trabue, Director of the Bureau of Educational Service, Teachers College.

Teachers or supervisory officers are invited to send to the Bureau of Educational Service, Teachers College, any tabulations of results obtained with the Visual Vocabulary Scales, or with any other important educational tests, and to ask for any advice or information which the Bureau can supply.

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Author [Trabue, Marion Rex]

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